Take Heart Alaska

A Cardiovascular Disease Prevention Plan for Alaska

ALASKA Health Fair

STATE of ALASKA
Department of Health and Social Services

American Heart Association℠
Fighting Heart Disease and Stroke

Take Heart Alaska

A Cardiovascular Disease Prevention Plan for Alaska

A Joint Project Between

The State of Alaska, Alaska Department of Health and Social Services, Division of Public Health
Tony Knowles, Governor
Karen Perdue, Commissioner
Peter Nakamura, MD, MPH, Director

American Heart Association, Alaska Region
Craig Harpel, Vice President

Alaska Health Fair, Inc.
Judith Muller, Executive Director

October 1998

To order a copy of this publication contact the Alaska Division of Public Health, Section of Community Health and Emergency Medical Services, P.O. Box 110616, Juneau, Alaska 99811-0616, phone 907-465-3140, fax 907-465-2770.

This publication was funded by the Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Adult and Community Health, Preventive Health and Health Services Block Grant.

Endorsements

This Cardiovascular Disease Prevention Plan for Alaska has been endorsed by the following:

Alaska Area Indian Health Service, Diabetes Program

Alaska Area Native Health Services

Alaska Association for Health, Physical Education, Recreation and Dance

Alaska Association of Diabetes Educators

Alaska Diabetes Association

Alaska Dietetic Association

Alaska Health Education Consortium

Alaska Health Fair, Inc.

Alaska Nurses Association

Alaska Recreation and Park Association

Alaska Regional Hospital

American Heart Association, Alaska Region

Eat Smart Alaska!

Municipality of Anchorage, Department of Health and Human Services

Providence Alaska Health System Administration, Diabetes Center

Southcentral Foundation

Southcentral Foundation, Community Health Services Team

South East Alaska Regional Health Consortium, Health Promotion Department

Yukon-Kuskokwim Health Corporation

Acknowledgements

Cardiovascular Disease Prevention Planning Committee Coordinator:

Catherine Schumacher, MD, MPH ..... Alaska Division of Public Health, Section of Epidemiology

Cardiovascular Disease Prevention Planning Committee Members

Stephanie Aird ..... South East Alaska Regional Health Consortium, Sitka, Alaska

Arnold Albrecht ..... Alaska Recreation and Park Association, Juneau, Alaska

Mike Chriss ..... BP Exploration, Prudhoe Bay, Alaska

Colleen Coughlin, MD ..... Internal Medicine, Cardiology, Anchorage, Alaska

Delisa Culpepper, MPH ..... Municipality of Anchorage, Department of Health and Human Services, Anchorage, Alaska

Carol Eckert, RN ..... Providence Alaska Medical Center, Cardiac and Pulmonary Rehabilitation

John C. Finley, MD ..... Cardiology, Anchorage, Alaska

Janet Helen Gamble ..... Community Representative, Anchorage, Alaska

Gene Green ..... Assistant City Manager, Unalaska, Alaska

Craig Harpel ..... American Heart Association, Alaska Region, Anchorage, Alaska

Ann Hook-Baker ..... Valley Hospital/Cardiac Rehabilitation, Palmer, Alaska

Susan Hoyt, MS, RD ..... Municipality of Anchorage, Department of Health and Human Services, Anchorage, Alaska

Jane Kelly, MD ..... Diabetes Program, Alaska Native Medical Center, Anchorage, Alaska

Nancy Knapp ..... Community Health Planning, South East Alaska Regional Health Consortium, Sitka, Alaska

Rick Knowlton ..... Alaska Native Medical Center, Anchorage, Alaska

Bill Lee ..... MERCK, Anchorage, Alaska

John McLeary ..... Municipality of Anchorage, Anchorage Parks and Recreation, Anchorage, Alaska

Bart McRorie ..... Bristol-Myers Squibb, Anchorage, Alaska

Peter Mjos, MD ..... Alaska Native Medical Center, Anchorage, Alaska

Pat Morrison, PHN ..... Kenai Public Health Center, Kenai Alaska

Justine Muench, RN ..... Bartlett Regional Hospital, Cardiac Rehabilitation, Juneau, Alaska

Judith Muller ..... Alaska Health Fair, Inc., Anchorage, Alaska

Elizabeth D. Nobmann, PhD, RD ..... EDN Nutrition Consulting, Anchorage, Alaska

Rosemary Palmer Zimmerman, DC ..... The Healing Center, Anchorage, Alaska

Roy Poole, PhD	Associate Professor of Counseling-University of Alaska Anchorage, Anchorage, Alaska
Ellen Provost, DO, MPH	Yukon-Kuskokwim Health Corporation, Bethel, Alaska
Christina Reagle	South East Regional Resource Center, Juneau, Alaska
Lora Reinbold	Bristol-Myers Squibb, Anchorage, Alaska
Sylvia Roberts	Fairbanks Memorial Hospital, PACE Program, Fairbanks, Alaska
Peggy Spittler	American Heart Association, Alaska Region, Anchorage, Alaska
Charlotte Stefanich, MPH, RD	Alaska Native Medical Center, Anchorage Alaska
Pat Stone, RD	Providence Alaska Medical Center, Nutrition, Anchorage, Alaska
Shara Sutherlin	Providence Alaska Medical Center, Critical Care, Respiratory Therapy and the Heart Center, Anchorage, Alaska
Ruth Townsend	Columbia-Alaska Regional Hospital, Anchorage, Alaska
Sharon Vassierre	Anchorage School District, Anchorage, Alaska
Tim Wallstrom, PhD	Alaska Association for Health, Physical Education, Recreation and Dance, Anchorage, Alaska
Carol White	CMW Health Promotion Services, Juneau, Alaska
Mary Wilda-Warner, PHN	Bethel Public Health Center, Bethel, Alaska

Alaska Division of Public Health Planning Committee Staff

Sally Bowers	Section of Epidemiology
Tammy Green	Section of Epidemiology
Bonnie Johnson	Section of Public Health Nursing
Patricia Owen	Section of Community Health and Emergency Medical Services
Diane Peck, MPH, RD	Section of Maternal, Child and Family Health
Glen Ray	Section of Community Health and Emergency Medical Services
Judy Sberna	Section of Epidemiology

Alaska Division of Public Health staff under the direction of:

Nancy Davis	Chief, Section of Public Health Nursing
Mark Johnson	Chief, Section of Community Health and Emergency Medical Services
John Middaugh, MD	Chief, Section of Epidemiology
Pam Muth	Chief, Section of Maternal, Child and Family Health

Executive Summary

Cardiovascular Disease (CVD) consists of a group of diseases and conditions affecting the heart and blood vessels. Heart attack and stroke are the most common forms of cardiovascular disease.

The Problem

- Each year, more than 650 Alaskans die of cardiovascular disease.[1]
- Taken together, heart disease and stroke account for 25.5% of Alaska deaths.
- Heart disease is not just a disease of the elderly.
- Heart disease is the second leading cause of death among both men and women in Alaska.
- Individuals suffering a heart attack or stroke are living longer with illness and its complications.
- At the present time, Alaska Native people have higher death rates from heart disease and stroke than non-Natives.

Many Alaskans are at risk for developing cardiovascular disease because: [2]

- 28% of adults are smokers
- 53% of adults have a sedentary lifestyle
- 19% of adults have high blood pressure
- 25% of adults that have had cholesterol checks have high blood cholesterol
- 29% of adults are overweight
- 4% of adults have diabetes
- Many adults do not eat heart healthy diets

Good News

Cardiovascular disease can be prevented or delayed through healthy lifestyles and preventive health services such as:

- Eliminating the use of tobacco
- Eating a heart healthy diet
- Being physically active everyday
- Having regular checkups for blood pressure and blood cholesterol levels
- Controlling high blood pressure and high cholesterol
- Maintaining desirable weight
- Managing stress

The healthy lifestyles that prevent cardiovascular disease also prevent other health problems, such as cancer, diabetes, arthritis, and depression.

Purpose of the Alaska Cardiovascular Disease Prevention Plan

The purpose of the Alaska Cardiovascular Disease Prevention Plan is to provide the impetus for action.

It is intended to provide overall guidance to communities, worksites, schools, health care providers, public health leaders and others interested in improving cardiovascular health in Alaska and improving the systems to carry out that mission.

Goals of the Alaska Cardiovascular Disease Prevention Plan

The overall goal of the plan is to increase heart health among all Alaskans through advocating for individual and community-based commitment to healthy lifestyles and improving access to preventive services.

Goal 1: **Leadership, Coordination, Advocacy** - Develop improved leadership, coordination and collaboration in Alaska in order to identify resources and improve advocacy for cardiovascular health.

Goal 2: **Alaska Specific Issues** - Ensure that Alaskans living in rural areas have access to cardiovascular disease prevention activities.

Goal 3: **Healthy Lifestyles** – Improve the ability of all Alaskans to eat a healthy diet, to engage in sufficient physical activity, to live tobacco-free, and to obtain needed preventive health services.

Goal 4: **Data and Information** - Develop and expand Alaska's capacity for making data about cardiovascular disease available and easily understood.

Goal 5: **Education** - Ensure the distribution of heart healthy information to the public and to health care providers.

Development of the Alaska Cardiovascular Disease Prevention Plan

This plan was a joint project of the Alaska Department of Health and Social Services, Division of Public Health; the American Heart Association, Alaska Region; and Alaska Health Fair, Inc. Individuals representing hospitals, tribal health organizations, local government, and experts in cardiology, wellness, nutrition, physical activity and others were involved in the planning process.

Take Heart Alaska is a newly formed coalition of agencies, organizations interested in promoting heart health and preventing cardiovascular disease. For more information contact Alaska Division of Public Health, Section of Community Health and Emergency Medical Services, P.O. Box 110616, Juneau, Alaska 99811-0616, phone 907-465-3140 fax 907-465-2770.

Contents

Endorsements ..... *i*
Acknowledgements ..... *ii*
Executive Summary ..... *v*

Introduction to Cardiovascular Disease 1
- Atherosclerosis 1
- Heart Attack 2
- Risk Factors for Heart Disease 2
- Stroke 4
- Risk Factors for Stroke 4

Scope of the Problem in Alaska 7
- Trends in Cardiovascular Disease Mortality 9
- Cardiovascular Disease Among Alaska's Racial and Ethnic Groups 10
- Women and Cardiovascular Disease 11
- Regional Differences in Heart Disease and Stroke Mortality 12
- Risk Factors for Cardiovascular Disease in Alaska 13
  - Tobacco Use 13
  - Physical Inactivity 14
  - Diet 14
  - High Blood Pressure and High Cholesterol 15
  - Overweight 15
  - Diabetes 15
  - Stress 15
- Current Alaska Activities Related to Cardiovascular Disease Prevention 16
  - Eat Smart Alaska! 16
  - Alaska Tobacco Control Alliance 16

Goals and Objectives of the Plan 17
- Introduction 17
- Development of the Plan 17
  - Issue 1: Statewide Leadership, Coordination and Advocacy 18
  - Issue 2: Alaska Specific Issues 20
  - Issue 3: Healthy Lifestyles 23
  - Issue 4: Data and Information 25
  - Issue 5: Education 26
- Evaluation of the Cardiovascular Disease Prevention Plan 29

Cardiovascular Disease Risk Factors and Risk Reduction Guidelines 31
Tobacco Use 31
Cigarette Smoking 31
Second Hand Smoke (passive smoking) 31
Smoking Cessation 31
Benefits of Smoking Cessation 32
Diet 32
Dietary Guidelines for the General Population 33
Dietary Guidelines for Alaskans Living a Subsistence Lifestyle 33
Dietary Fat and Cholesterol 33
Other Dietary Factors Related to Cardiovascular Disease 34
Physical Inactivity 36
Health Benefits of Physical Activity 36
Physical Activity Guidelines 37
High Blood Pressure 38
Blood Pressure Screening Guidelines 38
High Blood Pressure 38
Cholesterol 40
Cholesterol Screening Guidelines 40
Diagnosis and Treatment 41
Overweight and Obesity 42
Benefits of Weight Loss in Overweight and Obese People 42
Diabetes 43
Diabetes Guidelines 43
Stress, Anger and Other Psychosocial Factors 44

Appendices

References 45
Selected Healthy People 2000 Objectives for Prevention and Control of Cardiovascular Diseases 49
Resources 51

Figures

1. Leading Causes of Death, Alaska 1996 7
2. Coronary Heart Disease Deaths, Alaska by age, 1994-1996 8
3. Alaska Heart Disease Mortality, 1980-1996 9
4. Alaska Stroke Mortality Rates, 1980-1996 9
5. Cardiovascular Disease Mortality, Alaska and U.S. by race/ ethnicity, 1994-1996 10
6. Heart Disease and Stroke Mortality, Alaska Natives and Non-Natives, 1994-1996 11
7. Heart Disease Mortality, Alaska by region of residence, 1990-1996 12
8. Stroke Mortality, Alaska by region of residence, 1990-1996 12
9. Adults at Risk for Cardiovascular Disease, Alaska 13

Tables

1. Leading Causes of Death, Alaska Residents 1996 8
2. System for Evaluating Cardiovascular Disease Prevention Plan 29
3. Trends in the Awareness, Treatment and Control of High Blood Pressure in the United States, 1976-94 39
4. Initial Classification Based on Total and HDL Cholesterol 40
5. Risk Status Based on Presence of Coronary Heart Disease Risk Factors Other Than LDL-Cholesterol 41
6. Treatment Decisions Based on LDL-Cholesterol 41

Introduction to Cardiovascular Disease◆

Cardiovascular disease (CVD) refers to a variety of heart and blood vessel diseases; atherosclerosis is the underlying cause of a large majority of cardiovascular diseases. CVD is of major public health importance because it affects so many people, and because many interventions have been shown to decrease morbidity and mortality from CVD.[3] The good news is that many of the risk factors leading to CVD are preventable through healthy lifestyles and preventive health services. Furthermore, the healthy lifestyles that prevent atherosclerosis also help prevent other health problems, such as cancer, diabetes, arthritis and depression.

Atherosclerosis

Atherosclerosis comes from the Greek words athero (meaning gruel or paste) and sclerosis (hardness). It involves cholesterol, cellular waste products, calcium and fibrin (a clotting material in the blood) in the inner lining of an artery. The buildup that results is called plaque.

Atherosclerosis affects arteries. The type of artery and where the plaque develops varies with each person. Atherosclerosis is a slow, progressive disease that starts in childhood. In some people this disease progresses rapidly in their third decade. In others it doesn't become threatening until they're in their fifties or sixties.

Exactly how atherosclerosis begins or what causes it isn't known, but some theories have been proposed. Many scientists think atherosclerosis begins because the innermost layer of the artery becomes damaged. This layer is called the endothelium. Some causes of damage include high blood pressure, elevated cholesterol in the blood and cigarette smoking.

Because of the damage over time, fats, cholesterol, fibrin, platelets, cellular debris and calcium are deposited in the artery wall. These substances may stimulate the cells of the artery wall to produce other substances that result in further accumulation of cells in the innermost layer of the artery wall where the atherosclerotic lesions form. These cells accumulate and many of them divide. At the same time, fat builds up within these cells and around them. They also form connective tissue.

The innermost layer of the artery becomes markedly thickened by these accumulating cells and surrounding material. If the wall is thickened sufficiently, the diameter of the artery will be reduced and the amount of blood decreased, thus decreasing the oxygen supply. If the oxygen supply to the heart muscle is reduced, a heart attack can occur. If the oxygen supply to the brain is cut off, a stroke can occur. And if the oxygen supply to the extremities occurs, pain with exertion can result. Often a blood clot forms and blocks the artery, stopping the flow of blood.

◆ Much of the text in this introduction has been adapted from text on the American Heart Association web site (http://www.amhrt.org).

Heart Attack

Heart attacks result from blood vessel disease in the heart. Coronary heart disease (CHD) and coronary artery disease (CAD) are more specific names for heart disease. The medical term for heart attack is myocardial infarction. A heart attack occurs when the blood supply to part of the heart muscle itself, the myocardium, is severely reduced or stopped. This occurs when one of the arteries that supply blood to the heart muscle (coronary arteries) is blocked by an obstruction, such as plaque from atherosclerosis. A myocardial infarction is the damaging or death of an area of the heart muscle resulting from a reduced blood supply to that area. If the blood supply is cut off, muscle cells suffer irreversible injury and die. Disability or death can result, depending on how much heart muscle is damaged.

Risk Factors for Heart Disease

Risk factors are characteristics that increase the likelihood of developing disease. Some risk factors can be changed, and some cannot. The more risk factors a person has, the greater the chance that he or she will develop heart disease.

Risk factors for heart disease that can be changed

a. Cigarette/tobacco smoke – Smokers' risk of heart attack is more than twice that of nonsmokers. Available evidence also indicates that chronic exposure to environmental tobacco smoke (secondhand smoke, passive smoking) increases the risk of heart disease.

b. High blood cholesterol levels – The risk of coronary heart disease rises as blood cholesterol levels increase. A person's cholesterol level is also affected by age, heredity and diet.

c. High blood pressure – High blood pressure increases the heart's work load, causing the heart to enlarge and weaken over time. It also increases the risk of stroke, heart attack, kidney failure and congestive heart failure.

d. Physical inactivity – Lack of physical activity is a risk factor for coronary heart disease. Regular aerobic exercise plays a significant role in preventing heart and blood vessel disease. Even modest levels of low-intensity physical activity are beneficial if done regularly and long term. Exercise can help control blood cholesterol, diabetes and obesity as well as help to lower blood pressure.

Risk factors for heart disease that cannot be changed

a. Heredity – Children of parents with cardiovascular disease are more likely to develop it themselves. However, many inherited causes of heart disease are preventable, such as genetic abnormalities of cholesterol. Other preventable risk factors, such as smoking, run in families.

b. Male sex – Men have a greater risk of heart attack than women, and often have heart attacks earlier in life.

c. Age – The risk of heart attack increases with age. While heart attack is common among the elderly, substantial numbers of people less than 65 years of age also have heart attacks.

Other contributing risk factors for heart disease

a. Diabetes mellitus – Diabetes seriously increases the risk of developing cardiovascular disease.

b. Obesity – People who have an excessive accumulation of body fat are more likely to develop heart disease and stroke even if they have no other risk factors.

c. Stress may also be a contributing factor. Some scientists have noted a relationship between coronary heart disease risk and a person's life stress, behavior habits and socioeconomic status. These factors may affect established risk factors. For example, people under stress may start smoking or smoke more than they otherwise would.

Stroke

Stroke is a cardiovascular disease that affects the blood vessels supplying blood to the brain. A stroke occurs when a blood vessel bringing oxygen and nutrients to the brain bursts or is clogged by a blood clot or some other particle. Because of this rupture or blockage, part of the brain doesn't get the flow of blood it needs. Deprived of oxygen, nerve cells in the affected area of the brain can't function and die within minutes. And when nerve cells can't function, the part of the body controlled by these cells can't function either. The devastating effects of stroke are often permanent because dead brain cells aren't replaced.

There are four main types of stroke: two caused by blood clots, and two by hemorrhage. The most common type is cerebral thrombosis, caused by a blockage usually due to atherosclerosis. Cerebral embolism is the next most common, and is caused by a blood clot that moves from another artery or chamber of the heart into the arteries of the brain. Cerebral and subarachnoid hemorrhages are caused by ruptured blood vessels. They have a much higher fatality rate than strokes caused by clots.

Risk Factors for Stroke

Risk factors for stroke that can be changed

a. High blood pressure – High blood pressure is the most important controllable risk factor for stroke. Many people believe the effective treatment of high blood pressure is a key reason for the accelerated decline in the death rates for stroke.

b. Heart disease – After high blood pressure, heart disease is the most important risk factor for stroke. Heart attack is also the major cause of death among survivors of stroke.

c. Cigarette smoking – In recent years studies have shown cigarette smoking to be an important risk factor for stroke. The nicotine and carbon monoxide in cigarette smoke damage the cardiovascular system in many ways. The use of oral contraceptives combined with cigarette smoking greatly increases stroke risk.

d. Transient ischemic attacks (TIAs) – TIAs are strong predictors of stroke. A person who's had one or more TIAs is almost 10 times more likely to have a stroke than someone of the same age and sex who hasn't.

Risk Factors for Stroke *(continued)*

Some stroke risk factors are based on heredity. Others are a function of cultural processes. Still others result from a person's lifestyle. Factors resulting from heredity or natural processes can't be changed. Factors resulting from lifestyle or environment can be modified.

Risk factors for stroke that cannot be changed

a. **Heredity** – The chance of stroke is greater in people who have a family history of stroke

b. **Male sex** – Overall, men have a greater chance of stroke than women.

c. **Age** – The chance of having a stroke more than doubles for each decade of life after age 55. While stroke is common among the elderly, substantial numbers of people under 65 also have strokes.

d. **Race** – African-Americans have a much higher risk of death and disability from a stroke than whites, in part because African-Americans have a greater prevalence of high blood pressure.

e. **Diabetes mellitus** – Diabetes is an independent risk factor for stroke and is strongly correlated with high blood pressure.

f. **Prior stroke** — The risk of stroke for someone who has already had one is many times that of a person who has not.

Other contributing risk factors for stroke

Other controllable risk factors are secondary risk factors for stroke. They affect the risk of stroke indirectly by increasing the risk of heart disease:

a. **High blood cholesterol and lipids**

b. **Physical inactivity**

c. **Obesity**

Scope of the Problem in Alaska

Each year, approximately 650 Alaskans die of cardiovascular disease (ICD-9 codes 390-448).[1] Taken together, heart disease and stroke account for 25.5% of Alaska deaths (Table 1). Heart disease deaths are a close second to cancer deaths in Alaska.

Cardiovascular disease is also a major cause of physical disability. As many as six million Americans are alive today who have had a heart attack or stroke. The economic costs of CVD in the United States was estimated at $259.1 billion in 1997, including expenditures such as physician and nursing services, hospital and nursing home services, the cost of medication, and loss of productivity.[4]

Figure 1

Leading Causes of Death[1]

Alaska 1996

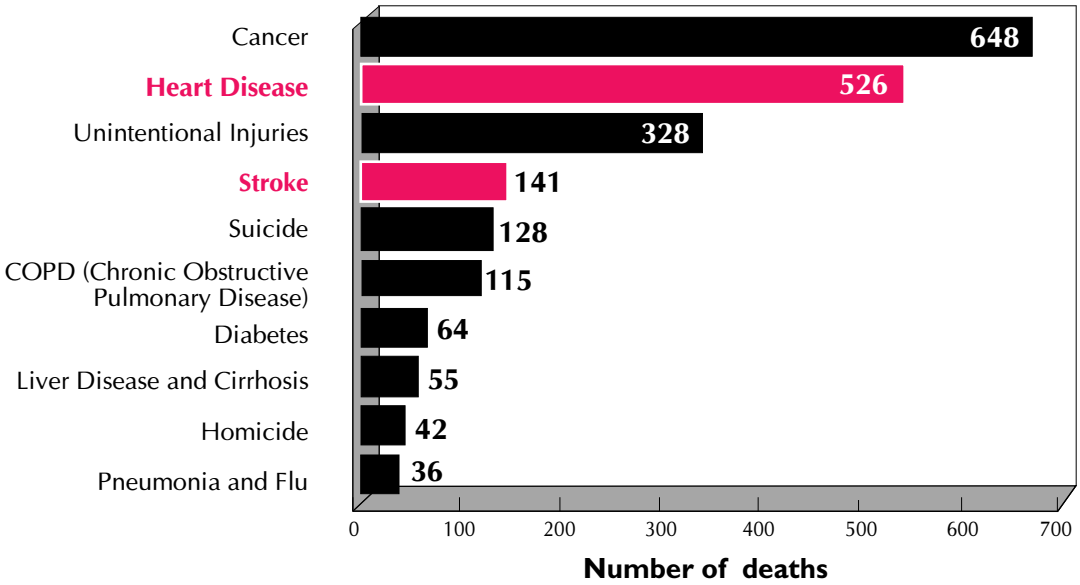


Table 1

Leading Causes of Death, Alaska Residents 1996

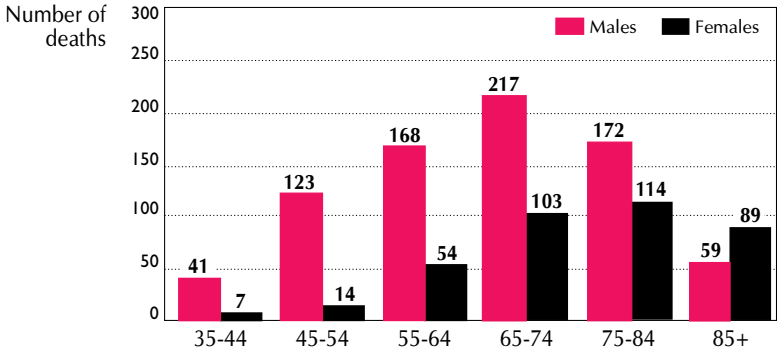
Cause of Death (ICD-9 code)	Number of deaths	% of total deaths
Cancer (140-208)	648	24.8
Heart Disease (390-398, 402,404, 410-429)	**526**	**20.1**
Unintentional Injuries (E800-E809, E826-949)	328	12.6
Stroke (430-438)	**141**	**5.4**
Suicide (E950-959)	128	4.9
Chronic obstructive lung disease and other allied conditions (490-496)	115	4.4
Diabetes (250)	64	2.4
Chronic liver disease/cirrhosis (571)	55	2.1
Homicide (E960-978)	42	1.6
Pneumonia/Influenza (480-487)	36	1.4
All other causes	530	20.3

Cardiovascular disease is not just a disease of the aged. Nationally, an estimated 45% of all heart attacks occur among people less than 65 years of age.[4] Coronary heart disease kills a substantial number of relatively young people, especially men, in their most productive years of life. In Alaska, 35% of all coronary heart disease deaths occur in people under age 65 (Figure 2).

Figure 2

Coronary Heart Disease Deaths

Alaska by age
1994-1996



Age-adjusted to U.S. 1940 population; ICD-9 codes 402,410-414,429.2

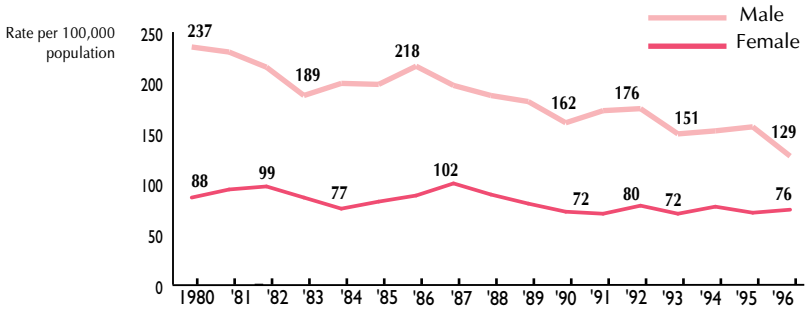
Trends in Cardiovascular Disease Mortality

Mortality from heart disease has been declining in Alaska and in the U.S. in the past several decades. The decline has been most dramatic among men (Figure 3). During the same time period, the prevalence of risk factors such as cigarette smoking and uncontrolled blood pressure have also declined. However, improvement in risk factors cannot explain all of the changes. Major therapeutic advances have also occurred during the same time period.

Figure 3

Alaska Heart Disease Mortality Rates

1980-1996



Age-adjusted to U.S. 1940 population; ICD-9 codes 390-398, 402, 404-429

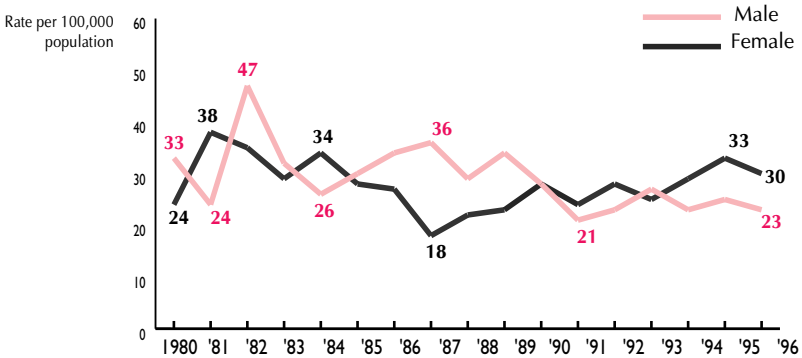
Year	Male	Female
1980	237	88
1981	232	96
1982	217	99
1983	189	88
1984	201	77
1985	200	84
1986	218	90
1987	199	102
1988	189	91
1989	183	82
1990	162	74
1991	174	72
1992	176	80
1993	151	72
1994	154	79
1995	158	73
1996	129	76

Mortality rates from stroke have also decreased in Alaska, although not to the same extent as heart disease (Figure 4). The mortality rate difference between men and women seen for heart disease is not as marked for stroke.

Figure 4

Alaska Stroke Mortality Rates

1980-1996



Age-adjusted to U.S. 1940 population; ICD-9 codes 430-439

Year	Male	Female
1980	33	24
1981	24	38
1982	47	35
1983	32	29
1984	26	34
1985	30	28
1986	34	27
1987	36	18
1988	29	22
1989	34	23
1990	28	28
1991	21	24
1992	23	28
1993	27	25
1994	23	29
1995	25	33
1996	23	30

Cardiovascular Disease Among Alaska's Racial and Ethnic Groups

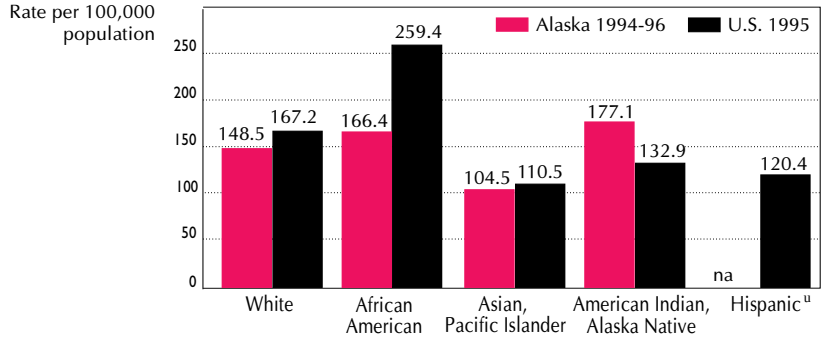
In 1996, Alaska's total population was 607,314. Alaska's African-American population totaled approximately 27,268, the Asian-Pacific Islander population totaled approximately 26,904, and the Alaska Native population totaled 100,025.[5] Because the population of Alaska Natives is large compared to that of African-Americans and Asian/Pacific Islanders, the data collected on Alaska Natives are often more consistent. Measuring health status in small populations can be difficult because the rates tend to fluctuate due to chance. The rates of disease can vary from year to year even if nothing else changes. Furthermore, it is not possible at the present time to measure mortality among Hispanics in Alaska because we don't have accurate population information.

Although nationally, the highest rate of CVD death is found among African-Americans, in Alaska the highest rate is found among Alaska Natives. With the exception of Alaska Natives, the death rates from CVD in Alaska are lower for each race group, compared to the U.S. rates.

Figure 5

Cardiovascular Disease Mortality

Alaska and U.S. by race/ethnicity
1994-1996



Age-adjusted to U.S. 1940 population; ICD-9 codes 390-448

[u] Hispanic can be of any race; data for U.S. 1993; Alaska data not available

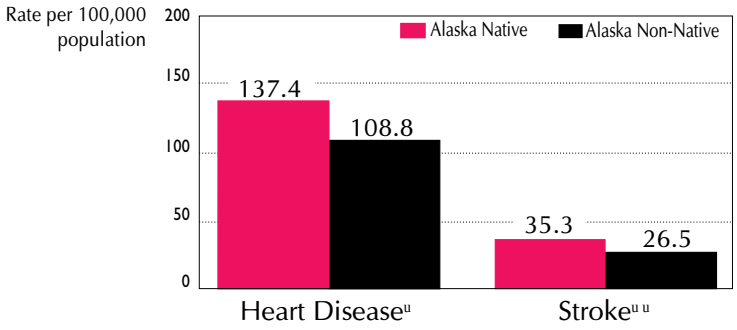
In the 1950s the major cause of death among Alaska Native people was infectious diseases; by the 1980s, cancer, heart disease and injuries had become the leading causes of death among Alaska Natives.[6]

At the present time, Alaska Native people have higher mortality rates from stroke and heart disease than do non-Natives (Figure 6).

Figure 6

Heart Disease and Stroke Mortality

Alaska Natives and Non-Natives
1994-1996



[u] Age-adjusted to U.S. 1940 population; ICD-9 codes 390-398, 402, 404-429
[u u] Age-adjusted to U.S. 1940 population; ICD-9 codes 430-438

The reasons for increased rates of heart disease and stroke, as well as of other chronic diseases among the Alaska Native population include improved treatment of infectious diseases, leading to increased life expectancy, and changing lifestyles. As people live longer, they are more likely to develop chronic diseases, such as cancer, heart disease, stroke and diabetes. The prevalence of risk behaviors, such as tobacco smoking, eating high fat processed foods, and sedentary lifestyle have also increased among the Alaska Native population.

Women and Cardiovascular Disease

As shown in Figure 2, the rate of heart disease death among women is approximately half that of men. Nonetheless, heart disease is the number one cause of death among women in the U.S., and the second leading cause of death in Alaska. Heart disease and stroke combined cause approximately 28% of deaths among Alaska women. In 1996, 211 Alaska women died of heart disease, and 89 died of stroke.[1] Women most at risk are those with risk factors such as diabetes, hypertension, smoking and elevated cholesterol.

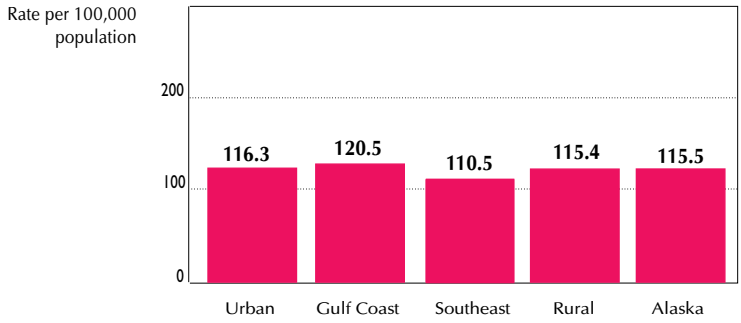
Regional Differences in Heart Disease and Stroke Mortality

Heart disease and stroke mortality rates do not vary greatly by region of the state (Figures 7 and 8). Heart disease mortality rates are lowest in the Southeast Region, and highest in the Gulf Coast Region. Stroke mortality rates are highest in the Urban and Rural Regions, and lowest in the Gulf Coast Region.

Figure 7

Heart Disease Mortality

Alaska by region of residence
1990-1996

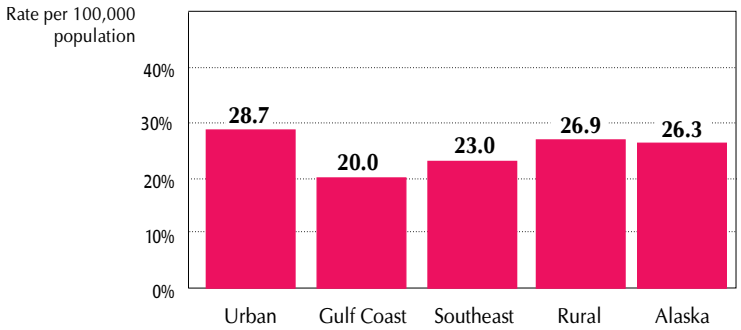


Age-adjusted to U.S. 1940 population; ICD-9 codes 390-398, 402, 404-429

Figure 8

Stroke Mortality

Alaska by region of residence
1990-1996



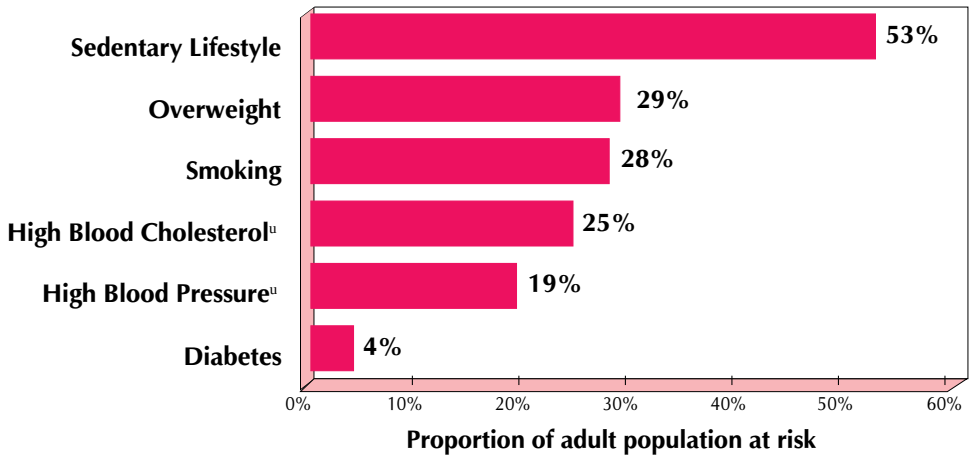
Age-adjusted to U.S. 1940 population; ICD-9 codes 430-438

Risk Factors for Cardiovascular Disease in Alaska

Modifiable risk factors for cardiovascular disease include tobacco use, lack of physical activity, poor diet, high blood pressure, high cholesterol, overweight and diabetes. Stress may also play a role. Control of these risk factors at both the population and individual levels is important in the prevention of CVD. Despite the fact that the risk factors are modifiable, the data indicate that many Alaskans remain at risk for heart disease and stroke.

Figure 9

Alaskan Adults at Risk for Cardiovascular Disease



Alaska Behavioral Risk Factor Survey, 1996

[u] Alaska Behavioral Risk Factor Survey, 1995

Tobacco Use

Among Alaskan adults, 27.6% report current smoking (30.7% of men and 24.1% of women).[2,7] Rates are higher among Alaska Natives (47.1%). Smoking rates have remained relatively constant in Alaska since 1991, when the BRFSS was first implemented.[7]

Among high school students, 36.5% have smoked cigarettes at least once in the past 30 days, and 21.1% have smoked on 20 or more of the past 30 days. Among middle school students, over half have tried smoking at least once and 24.8% have smoked at least once in the past 30 days.[8]

Physical Inactivity

Among Alaska adults, 25.4% are physically inactive (engage in no physical exercise). Among men, 20.1% are physically inactive, and 31.2% of women are inactive. Among Alaska Natives, 47.1% are physically inactive. Only 14% of Alaskan adults engage in regular vigorous exercise.[2]

Alaska high school students are much more likely to be physically active; 77.9% of boys and 65.6% of girls report engaging in vigorous physical exercise on three or more of the past seven days. Among middle school students, 86.5% of boys and 82.2% of girls report exercising and/or playing on a school sports team.[8]

Diet

Dietary Fat

There is little information about fat consumption among Alaskans. The 1992 Behavioral Risk Factor Surveillance System (BRFSS) collected information about how frequently adults ate certain high fat foods, such as potato chips, hot dogs and fried chicken. Men reported eating more high fat foods than did women. Because the survey did not quantify the actual amount of each food, there was no way to determine how much fat people actually ate.[9]

Alaska Native fat intake has been documented to be comparable to that of the nation in one study, and comparable or higher in another study.[10,11]

The 1995 Youth Risk Behavior Survey found that among high school students, 56.5% of boys and 42.9% of girls reported eating french fries or potato chips during the previous day, and 53.6% of boys and 33.4% of girls reported eating hamburgers, hot dogs or sausages on the previous day. Similar results were found for middle school students.[8]

Fruits, Vegetables and Fiber

In 1996, 26.2% of adult Alaskans reported eating five or more fruits and vegetables per day[2]; in 1994, only 19% reported eating five or more fruits or vegetables per day. Among women, 30.1% ate five or more fruits and vegetables per day, as compared to 22.6% of men. Among Alaska Natives, 19.5% ate five or more fruits and vegetables per day.

Among Alaskan high school students, 33.7% reported eating five or more fruits and vegetables in the previous day, as compared to 27.7% of U.S. students.[8]

We have no data on fiber consumption for Alaska.

Alcohol

Although moderate alcohol consumption may be a protective factor for cardiovascular disease, it is a serious public health problem in Alaska. Alaska leads the nation in deaths from unintentional injuries, and alcohol plays a role in at least half of these deaths. In 1995, 58.8% of Alaskan adults reported drinking alcohol in the past month.[7] Among Alaska adults, 19% report drinking at least five or more drinks on one occasion (binge drinking) in the past month, as compared to the national median of 14%.[7] Men are more likely to engage in binge drinking. An estimated 2.9% of Alaskans had more than 60 drinks during the past month.

Among Alaskan high school students, 47.5% have had at least one drink of alcohol in the past 30 days; 31.3% reported binge drinking on at least one occasion in the prior 30 days.[8] Over two-thirds of middle school students report ever having had at least one drink of alcohol.

High Blood Pressure and High Cholesterol

Among Alaskan adults, 91.4% have had their blood pressure checked in the past two years, and 60.7% have had a cholesterol test in the past five years.[7] Overall, 19.3% of adults have been told that they have high blood pressure Of those tested for cholesterol, 24.6% have been told that their cholesterol is too high.

We do not have information about how many people in Alaska have been treated for blood pressure and cholesterol, or how effective the treatment might be.

Overweight

The 1996 BRFSS finds that 29.4% of Alaskan adults are overweight, based on a body mass index ≥27.3 for females and ≥27.8 for males. Among men, 30.0% are overweight; among women, 28.7%. Among Alaska Natives, 37.3% are overweight.[2]

Among Alaska adults, 10.6% have been advised by a health care provider in the past year to lose weight. Among those who are overweight, based on body mass index, only 5.6% report exercising or restricting calories to lose or maintain weight.[2]

Diabetes

Approximately 14,700 Alaska adults have been diagnosed with diabetes. Among women, 4.1% have diabetes, and 3% of men have diabetes. Among people over age 65, 13.4% have diabetes. Among minority populations, the highest rates are found among Hispanics (5%).[12] The prevalence of diabetes in the Alaska Native population has increased over the past decade, increasing from 15.7 per 1,000 people in 1985 to 19.2 per 1,000 in 1993. The lowest rates are found in the Eskimos, and the highest in the Aleuts.[12, 13]

Stress

Among Alaskan adults, 37.1% report having at least one day in the prior month where their mental health was not good. Women are more likely to report having a day where mental health is not good (44.2% of women and 30.5% of men). Overall, the mean number of days per month per person where mental health was not good is 2.7 for men and 3.4 for women.[2]

Current Alaska Activities Related to Cardiovascular Disease Prevention

Eat Smart Alaska!

Eat Smart Alaska is a coalition of volunteers, staffed by the Alaska Department of Health and Social Services. Its mission is to help shape food consumption in a positive way, promoting health and reducing disease among all Alaskans. Members include consumers, foodservice representatives, educators, health professionals, government agencies and private businesses. Some of the ways Eat Smart Alaska works toward its mission are:

- to advocate for increased availability of healthful foods,
- to increase educational efforts on the economic benefits of healthful eating,
- to increase use of the media to promote healthful eating messages, and
- to publicize that healthful eating enhances quality of life and prevents disease.

Eat Smart Alaska has published a detailed needs assessment entitled "Eat Smart Alaska! Nutrition Related Chronic Disease in Alaska: Baseline Needs Assessment."[9] The needs are summarized into four areas: 1) food access and availability; 2) environmental conditions and support; 3) education, and 4) data collection and research.

Eat Smart Alaska also directs the Five-A-Day for Better Health Program in Alaska, which is a campaign to increase consumption of fruits and vegetables to five servings a day.

Alaska Tobacco Control Alliance

The Alaska Tobacco Control Alliance is a statewide coalition of more than 170 organizations and individuals. Its purpose is to encourage, coordinate and support effective methods for preventing tobacco use by children and discouraging use by adults. A priority of the alliance is to influence public policy decisions related to tobacco use. The alliance is working in the following public policy areas:

- tax and pricing policy,
- youth access,
- clean indoor air, and
- advertising and promotion.

The recent passage of a $0.71 per pack increase in the state cigarette tax was largely due to efforts of this coalition.

Goals and Objectives of the Plan

Introduction

The overall goal of the Alaska Cardiovascular Disease Prevention Plan is to increase heart health among all Alaskans through advocating for individual and community-based commitment to healthy lifestyles and improving access to preventive services.

The plan is divided into five major issues which are:

- Leadership, Coordination and Advocacy
- Alaska Specific Issues
- Healthy Lifestyles
- Data and Information
- Public and Professional Education

Development of the Plan

This plan was a joint project of the Alaska Department of Health and Social Services, Division of Public Health; the American Heart Association, Alaska Region; and Alaska Health Fair, Inc. Individuals and representatives from many other agencies and organizations participated in the process.

A statewide meeting in October 1996, hosted by the Alaska Division of Public Health, highlighted the problem of cardiovascular disease in Alaska and kicked off the planning process. A planning committee formed and guided the process. Workgroups met independently on physical activity, nutrition, school health, community and worksite interventions, data, public education, professional education, health screening and rural issues. The workgroups developed goals, objectives and strategies, which were reviewed by the steering committee. Once a draft was agreed on by the steering committee, reviewers were sought from a variety of areas. Those agencies that officially endorsed the plan as of the time of publication are listed in the beginning of the document.

The planning committee's intention is that this plan will provide the impetus for action. The plan is not meant to be prescriptive, but rather to provide overall guidance to communities, worksites, schools, health care providers, public health leaders and others interested in improving health in Alaska and improving the infrastructure necessary to carry out that mission.

In order to share responsibility for action for implementing strategies to prevent cardiovascular disease in Alaska, the planning committee agreed in March of 1998 to create a statewide coalition. The cardiovascular disease prevention coalition called "Take Heart Alaska" is now building support for improving cardiovascular health in Alaska. For more information on "Take Heart Alaska," contact the Alaska Division of Public Health, Section of Community Health and Emergency Medical Services, P.O. Box 110616, Juneau, AK 99811-0616, phone 907-465-3140 or fax 907-465-2770.

Issue 1: Statewide Leadership, Coordination and Advocacy

We need improved coordination, advocacy, and leadership in CVD prevention. Although there is interest in CVD prevention, activities tend to be done in isolation. CVD prevention does not appear to be a priority for Alaskans, and there are limited resources to develop prevention programs.

Goal: Develop improved leadership, coordination and collaboration in Alaska in order to identify resources and improve advocacy for heart health.

Objective 1: Coordinate with, build and strengthen CVD prevention related coalitions.

- **a.** Establish CVD Prevention partnership/coalition.
- **b.** Develop, implement and evaluate a CVD plan.
- **c.** Build a statewide Physical Activity Coalition to affiliate with the National Coalition (or reestablish the Governor's Council on Physical Fitness).
- **d.** Support the Eat Smart Alaska Coalition and the expansion of the Five-A-Day for Better Health Program
- **e.** Support the Alaska Tobacco Control Alliance.
- **f.** Strengthen the Alaska Worksite Wellness Association.
- **g.** Coordinate CVD Prevention efforts with the Public Health Improvement Plan.

Objective 2: Increase CVD Prevention/Health Promotion program capacity within state government.

- **a.** Establish a CVD staff position in the Division of Public Health.
- **b.** Develop a CVD Prevention/Health Promotion Program within the Division of Public Health.
- **c.** Advocate for a physical activity staff position in the Department of Education.
- **d.** Continue collaboration between the Division of Public Health and the Department of Education on health-related issues.

Objective 3: Increase support for community-based CVD prevention/health promotion programs.

a. Provide models, resources and incentives for implementing and improving community-based CVD prevention/health promotion programs.

b. Increase community-based health promotion program grant opportunities in the areas of physical activity, nutrition and tobacco prevention.

c. Develop community-based CVD prevention/health promotion programs to meet needs of specific populations such as racial and ethnic minority groups, women, older adults, persons with disabilities, and low income groups.

Objective 4: Increase awareness, support and funding for cardiovascular health.

a. Educate legislators, policy makers, business leaders and others about the value of heart health promotion and its role in health care.

b. Advocate for financial benefits for businesses that implement and maintain worksite health promotion programs.

c. Develop and promote low-cost prevention services.

d. Advocate for legislation to mandate coverage of CVD preventive services.

e. Advocate for funding and implementation of comprehensive school health programs.

f. Advocate for increased local and state capital expenditures for indoor and outdoor recreation facilities and areas.

g. Support/promote enforcement of existing youth access tobacco prevention laws.

h. Advocate for and promote clean-indoor-air policies.

Objective 5: Advocate for Comprehensive School Health Programs (CSHP).

a. Partner with Department of Education, Department of Health and Social Services, Alaska Association of Physical Education, Health Recreation and Dance, American Cancer Society and others to increase efforts.

b. Educate the lawmakers and others about the importance of CSHP.

c. Advocate for daily physical education in all Alaska schools, as part of comprehensive school health programs.

d. Advocate for ongoing teacher training in health and physical education.

Issue 2: Alaska Specific Issues

Alaska has unique characteristics that make delivery of preventive services and education about healthy lifestyles difficult. These include the long winter, many isolated communities, different foods and the fact that other risk factors may seem more important to communities.

It will be important to involve community health aides and community health representatives in rural villages in order to deliver a CVD prevention message. In some areas, there may be other influential groups, including traditional councils and elder councils who should be involved in program development. Including Alaska Native tradition and the subsistence diet into a CVD prevention program would assist with implementation.

In order to involve a community in CVD prevention, it is important to deal with issues felt to be important by the people in that community. Many times alcohol and stress are listed as important issues. Dealing with mental health issues may be beneficial to CVD prevention, in that stress makes it difficult for people to attend to other areas in their lives. Furthermore, many risk factors leading to CVD have a behavioral or emotional component. Alaska leads the nation in suicide mortality. Mental health and alcohol issues cannot be ignored in this CVD prevention plan.

Many people believe that Alaska Natives are somehow protected against coronary heart disease. As shown in this document, Alaska Natives now have higher rates of death from heart disease and stroke than do non-Native people. Furthermore, the data show that Alaska Native people are less likely to be screened for CVD risk factors, and anecdotal information suggests that if high cholesterol is identified, it is less likely to be treated.

Goal: Ensure that Alaskans living in rural areas have access to CVD Prevention programs and services.

Objective 1: Ensure that CVD prevention activities are culturally relevant to individuals residing in rural Alaska.

a. Include representatives from rural communities in identifying effective CVD prevention strategies.

b. Develop a network of individuals with experience living and working in rural Alaska to consult in the development of informational materials.

c. Use existing data about effective interventions and continue to collect new data to assist in the development of interventions relevant to rural communities.

Objective 2: Increase accessibility to heart healthy foods, physical activity and tobacco prevention efforts in rural Alaska.

a. Improve knowledge about and access to fruits, vegetables and low-fat food choices in rural and village communities.

b. Network with nutrition groups to develop strategies to assist communities with innovative/ realistic methods to increase the availability of heart healthy foods.

c. Emphasize traditional meats, sea mammals, fish, plants and berries in dietary recommendations for rural Alaska.

d. Network with physical activity groups to develop strategies to assist communities with innovative/ realistic methods to increase opportunities for increasing physical activities.

e. Build on community strengths, such as subsistence diet and lifestyle, and established recreational activities.

f. Support ongoing tobacco prevention efforts in rural Alaska.

Objective 3: Enhance accessibility to opportunities for mental health counseling, stress reduction and healthy community activities in rural areas.

a. Develop networks including mental health professionals, public health programs and community planning groups.

b. Develop strategies to increase activities that promote a sense of connection to community, as well as those that reduce risk for CVD.

c. Build on individual, family and community strengths.

Objective 4: Increase awareness of CVD risks among Alaska Native populations and improve the level of preventive health services.

a. Format existing data about CVD risks and continue to collect new data to make the problem real to health care providers, communities and individuals.

b. Increase CVD screening programs and services in rural communities and clinics and among the Alaska Native population.

Issue 3: Healthy Lifestyles

Despite what we know about preventing heart disease with healthy lifestyles, many Alaskans do not engage in healthy lifestyles. Healthy lifestyles include eating a good diet, being physically active and living tobacco free, as well as obtaining clinical preventive services.

People can be motivated to healthy lifestyles in many different settings, including communities, worksites, schools and health care settings. Objectives are presented for each of the settings so that communities, worksites, schools and health care settings will be able to examine the objectives most relevant to their area of interest.

Goal: Improve ability of all Alaskans to eat a healthful diet, to be physically active, to live tobacco-free, and to obtain needed preventive health services.

Objective 1: Improve heart health by developing, supporting and implementing community-based health promotion programs.

a. Involve members of communities in planning, developing and implementing health promotion programs.

b. Coordinate community-based health promotion activities with private, public, academic and service organizations within communities.

c. Promote the identification, gathering, and preparation of traditional and subsistence foods.

d. Encourage availability and use of healthful food in restaurants, fast food establishments, worksites and school cafeterias.

e. Increase physical activity and recreational opportunities with options and incentives for individuals, families and groups.

f. Promote "family friendly" community physical activity events and programs at local levels.

g. Provide safe, accessible walking, jogging and biking paths and ski trails.

h. Increase opportunities for making public buildings and schools available for physical activities.

i. Enforce strict laws on youth access to tobacco.

j. Support non-smoking facilities.

k. Decrease environmental tobacco smoke in public places.

l. Increase population based CVD/ cholesterol screening health promotion programs.

Objective 2: Improve heart health by developing, supporting and involving worksite wellness programs.

a. Implement worksite health promotion programs that include CVD health screening and health education.

b. Involve members of worksites in planning, developing and implementing wellness programs specific to the needs of the employees.

c. Increase availability and purchase of high fiber, low-fat foods in worksite cafeterias and vending machines.

d. Promote and support opportunities for employees to incorporate physical activity into their daily lives.

e. Support and encourage worksite non-smoking policies.

f. Increase opportunities for smoking cessation programs for employees.

Objective 3: Develop, advocate for and implement comprehensive school health programs (CSHP) in schools including pre-kindergarten through college.

a. Ensure quality school health education on healthy lifeskills including nutrition education, physical activity and tobacco prevention.

b. Advocate for quality school-based nutrition programs, as part of a comprehensive school health program.

c. Increase the amount of time and program quality designated for physical activity and sports in Alaska school districts.

d. Advocate for daily physical education in all Alaska schools, as part of comprehensive school health programs.

e. Work to improve the playgrounds and play areas for schools, including preschools and universities.

f. Create and expand after-school physical activity programs.

g. Provide ongoing training for school personnel involved in teaching health, nutrition and physical education.

Objective 4: Assure that all health care providers and clinics in Alaska are implementing appropriate CVD risk reduction techniques in their practices.

a. Provide professional education on screening guidelines for all primary care providers.

b. Subsidize CVD/Cholesterol screening services and equipment.

c. Increase CVD screening and assessment, follow up health education, counseling and referral services.

d. Routinely assess fitness levels and talk to patients about incorporating physical activity into their daily lives, preferably as part of comprehensive clinical preventive services.

e. Routinely assess tobacco use, advise users to quit and assist them with a quit plan.

f. Routinely counsel patients to limit dietary fat and increase consumption of fiber, fruits and vegetables.

Issue 4: Data and Information

We do not have adequate data to evaluate and monitor CVD morbidity, mortality and risk factors in Alaska.

Goal: Develop and expand Alaska's capacity for having data about cardiovascular disease available and understandable so that the information can be used for evaluation, planning and policy development.

Objective 1: Increase capacity to use existing data systems.

- **a.** Support and make use of data from the National Registry of Myocardial Infarction (NRMI).
- **b.** Increase use of Medicaid and Medicare data to evaluate costs of CVD.
- **c.** Support the Youth Risk Behavior Survey and the Behavioral Risk Factor Surveillance System.
- **d.** Make the data real and personal and use Alaska data in presentations.

Objective 2: Advocate for additional data collection systems necessary for evaluating the impact of CVD in Alaska.

- **a.** Support implementation of a statewide uniform hospital discharge data system.
- **b.** Work with hospitals on pilot hospital discharge data.
- **c.** Support implementation of NRMI at the Alaska Native Medical Center.

Objective 3: Conduct special studies to improve knowledge about cardiovascular disease in Alaska.

- **a.** Consider KAP (knowledge, attitude and practice) surveys among health care providers regarding clinical preventive services.
- **b.** Support Department of Education health education and physical education curriculum surveys of Alaska schools.
- **c.** Develop and implement methods of measuring food consumption patterns and monitoring nutrition status of Alaskans.
- **d.** Identify barriers to eating a healthy diet for Alaskans.

Issue 5: Education

The issues of public education and professional education are critical to meeting the objectives of the Alaska CVD Prevention Plan. Information about CVD prevention can be confusing and conflicting. The media reports a fact one day, and then seems to present a contradictory fact the next day. In actuality, a large body of reliable information exists regarding the prevention of CVD. This plan proposes to develop a strategic way to distribute that information to the public and health care providers.

Goal: Ensure distribution of heart healthy information (including primary and secondary prevention) to the public and to health care providers .

Public Education

Objective 1: Develop a statewide strategic media plan.

- **a.** Develop a coordinated communications plan to reach communities and worksites.
- **b.** Involve the media, public relations specialists and representatives from a variety of audiences to help develop the plan.
- **c.** Adapt and implement national media campaigns such as the CDC physical activity media campaign "Ready Set: It's Everywhere You Go."
- **d.** Ensure that the media campaign is age-appropriate and culturally diverse to reach a broad population of Alaskans.
- **e.** Use the following channels of communication in the development of the statewide media plan: television, radio, organizational newsletters, health fairs, Internet web site(s) and newspapers.
- **f.** Develop persuasive health messages to educate the public about healthful foods, physical activity, wellness and lifestyle choices.

Objective 2: Develop CVD health education materials for the public and develop methods to deliver public education.

- **a.** Produce an educational video to show at health fairs with testimonials and lifestyle behaviors.
- **b.** Use American Heart Association materials and resources at health fairs and other events.
- **c.** Coordinate with American Heart Association and Alaska Health Fair, Inc. to provide coordination of services at local health fairs statewide.
- **d.** Use existing distance delivery technologies to develop CVD education for rural communities.

Objective 3: Develop and market a statewide clearinghouse for CVD prevention information to improve access to CVD resources for all Alaskans (in coordination with the Alaska Health Education Library Project).

- **a.** Identify reliable resources/references for the public based on sound scientific advice.
- **b.** Develop and promote a web site on CVD Prevention that includes information on nutrition, physical activity and tobacco.
- **c.** Develop and promote a CVD prevention telephone line and CVD information center.

Professional Education (Health Care Providers)

Objective 1: Develop statewide CVD/cholesterol screening recommendations and standards of care for CVD Prevention.

- **a.** Form a task force to review existing recommendations and develop state CVD screening recommendations and standards of care for CVD prevention for Alaska.
- **b.** Obtain endorsement of the CVD screening recommendations from the Alaska State Medical Association, Alaska State Nurses Association, as well as Nurse Practitioner and Physician Assistant Associations.

Objective 2: Develop consistent, concise, understandable educational messages for all health care providers in Alaska focusing on the prevention of cardiovascular disease.

- **a.** Use a bulletin approach: one page, concise, unbiased information.
- **b.** Develop presentations appropriate for Grand Rounds, medical staff meetings and other meetings of health care providers.
- **c.** Use Alaska data in presentations to health care professionals.
- **d.** Emphasize the importance of intensive preventive care for people who have had a heart attack, bypass surgery, or other objective evidence of atherosclerotic disease in all educational materials.

Objective 3: Develop ways to provide information to outlying communities.

- **a.** Work with existing technology to reach outlying communities.
- **b.** Provide professional education videotapes for outlying communities.
- **c.** Develop a CVD risk factor self study module (similar to the one developed for diabetes) for Community Health Aides.

Objective 4: Make CVD prevention easier to implement in busy clinical practices

a. Develop or adapt an "educational package" for clinics dealing with preventive services.

b. Develop or adapt a useful sheet for medical charts tracking preventive services.

c. Use risk assessment questionnaires to aid health care providers in evaluating patients.

d. Develop a "risk factor team" to consult with physicians and staff to implement preventive services.

Evaluation of the Cardiovascular Disease Prevention Plan

The results of the Alaska Cardiovascular Disease Prevention Plan will be evaluated using methods described in "Evaluating Community Efforts to Prevent Cardiovascular Disease."[14] Briefly, the evaluation will consist of a process evaluation, monitoring intermediate outcomes, and monitoring distal outcomes.

Process evaluation is concerned with whether the planning has been completed, and whether it is operating on schedule. It looks at activities of staff and community members. Outcome evaluation determines whether or not changes are occurring in the community; intermediate outcomes are changes occurring in the community to reduce risks and enhance protective factors for CVD, such as new services or new policies. Distal outcomes include CVD risk factors, such as physical activity and smoking prevalence (Table 2).

Table 2

System for Evaluating Cardiovascular Disease Prevention Plan[14]

Measurement Instrument	*Measures and Brief Definition*
Process Evaluation	
Monitoring System	1. Members participating; new members, affiliates or partners
	2. Planning products: new objectives, bylaws, committees and other internal outcomes
	3. Media coverage
	4. Financial resources generated, including in-kind services, grants, donations
	5. Dollars obtained
	6. Services provided
	7. Community actions taken to bring about changes, such as phone calls, personal contacts
Member satisfaction survey	8. Satisfaction with aspects of initiative
Intermediate Outcome Evaluation	
Monitoring system	1. Community changes: changes in programs, policies and practices of agencies, businesses and governmental bodies related to goals and objectives
Distal Outcome Evaluation	
Behavioral Surveys	1. Behavioral measures (diet, physical activity, smoking)
Community-level indicators	2. Archival or other indirect or global measures, such as miles of walking trails, percentage of stores with low fat milk
Interviews with key participants	3. Qualitative information about critical events based on semi-structured interviews with key participants

Data Collection

The level of the evaluation will to some degree depend on the level of resources available. Prior to developing data collection systems, the group involved in the initiative will need to decide what information is needed to evaluate progress.

A monitoring system will be set up using log forms to document activities of the initiative. Log forms are used for events, ongoing services, media coverage and resources generated. Log forms will be further analyzed to provide information to the group.

A member satisfaction survey can be carried out, adapting existing surveys for Alaska's use. Existing behavioral surveys can be used to evaluate distal outcomes. These include the Alaska Behavioral Risk Factor Surveillance System and the Youth Risk Behavior Survey. Community level indicators can be monitored, based on decisions of the group about which indicators should be monitored.

Cardiovascular Disease Risk Factors and Risk Reduction Guidelines

The Alaska Cardiovascular Disease Prevention Plan addresses risk factors that are:

- modifiable,
- responsible for a large proportion of heart disease and stroke, and
- for which well-tested prevention and intervention strategies exist for control.

The plan also addresses Alaska-specific issues, including the stress of living in isolated communities.

Tobacco Use

Cigarette Smoking

Cigarette smoking is one of the most important preventable causes of premature death in the United States. Atherosclerotic cardiovascular disease (clogged arteries) is the chief contributor to the excess deaths from smoking. Cigarette smoking is so widespread and significant as a risk factor that the Surgeon General has called it "the most important of the known modifiable risk factors for coronary heart disease in the United States."[15] Overall, smokers experience a 70% increase in the death rate from coronary heart disease; stroke and peripheral vascular disease are also increased among smokers. Cigarette smoking acts synergistically with other risk factors (notably elevated cholesterol and hypertension) to greatly increase the risk for coronary heart disease.

Smoking also leads to lung cancer; emphysema; cancers of the oral cavity, esophagus, bladder, cervix; and adverse birth outcomes. By supporting existing efforts to prevent and control tobacco use, and by developing additional approaches, the CVD Prevention Plan will be fighting other major killers in Alaska.

Second Hand Smoke (passive smoking)

Several studies document the health hazards posed by passive smoking.[16] It is estimated that from 37,000 to 40,000 people die from heart and blood vessel disease caused by other people's smoke each year.[17]

Smoking Cessation

Stopping smoking can greatly decrease the risk of heart disease; after only one year of stopping, ex-smokers have half the risk of smokers; the risk is reduced to normal after 10-15 years of stopping.[18]

Benefits of Smoking Cessation [18]

a. Compared with people who continue smoking, stopping smoking substantially reduces the risk of coronary heart disease among men and women of all ages.

b. After only one year of stopping, ex-smokers have half the risk of coronary heart disease as do smokers; the risk is reduced to normal after about 15 years of stopping.

c. Among people who have already developed coronary heart disease, stopping smoking markedly reduces the risk of having another heart attack or of dying. In many studies, the reduction in risk has been 50% or more.

d. Stopping smoking markedly reduces the risk of developing peripheral artery disease.

e. Among people who already have peripheral artery disease, stopping smoking greatly improves exercise tolerance, reduces risk of amputation and increases overall survival.

f. Stopping smoking greatly reduces the risk of stroke. After stopping smoking, the risk of stroke returns to the level of never smokers after about five years.

Diet

Diet has always been vitally important to health.[19] In previous decades, the so-called "deficiency diseases" predominated. These include rickets, pellagra, scurvy, and goiter, caused by dietary deficiencies in vitamin D, niacin, vitamin C and iodine, respectively. Such conditions have been virtually eliminated in the developed world due to an abundant food supply and to fortifying foods with essential elements.

Now we face the problems of dietary excess and imbalance.

Dietary fat and cholesterol play an important role in regulation of the blood cholesterol level which is directly related to atherosclerosis. In addition, other dietary factors have also been found to be related to CVD.[20]

Dietary Guidelines for the General Population [21,22]

a. Eat a variety of foods;

b. Balance food intake with physical activity to maintain or improve weight;

c. Choose a diet low in fat, saturated fat and cholesterol. Total dietary fat should be 30% or less and saturated fat 10% or less of total calories. Dietary cholesterol should be less than 300 milligrams per day;

d. Choose a diet high in complex carbohydrate and fiber containing foods. Adults should consume at least six servings of grain products and five servings of vegetables and fruits each day;

e. Choose a diet moderate in salt and sodium;

f. Eat at least two fish meals per week.

Dietary Guidelines for Alaskans Living a Subsistence Lifestyle [10,23]

a. Eat traditional fish and lean meat; if marine mammals and fats are part of traditional lifestyle, continue consumption of these foods;

b. Minimize intake of foods high in saturated fat, such as fatty beef, butter, milk fat, margarine and processed meat;

c. Substitute water frequently in place of sugar-containing or caffeine containing beverages;

d. Eat more calcium-rich foods, fruits and vegetables;

e. Substitute whole grain bread for white bread;

f. Reduce energy-dense sweets, salt, cured meats, canned soups and other salty foods.

Reducing dietary fat and increasing fruit and vegetable consumption will also reduce risk for several types of cancer, including colorectal cancer and lung cancer. Maintaining caloric balance will reduce risk of diabetes and high blood pressure.[9]

Dietary Fat and Cholesterol

The relationship of dietary fat and cholesterol to CVD, and in particular, coronary heart disease, is supported by extensive and consistent clinical, epidemiologic, metabolic and animal evidence.[19] Atherosclerosis is related to

the level of total and LDL ("bad") cholesterol in the blood, which is increased by diets high in saturated fats. Sources of saturated fat in the diet include animal products, and some vegetable fats, such as coconut and palm oils. The American Heart Association and others recommend that the amount of fat in the diet comprise 30% or less of total calories, and that saturated fats comprise 10% or less of total calories. The effect of dietary cholesterol on blood cholesterol is weaker and more variable than that of saturated fats. However, recommendations are to reduce daily consumption to no more than 300 mg per day. Fat and cholesterol consumption can be reduced by choosing foods relatively low in fat and cholesterol, such as vegetable, fruits, whole grain foods, fish, poultry, lean meats and low-fat dairy products.[19]

In recent years there has been interest in monounsaturated fatty acids as an appropriate replacement for saturated fat in the diet, the so-called "Mediterranean Diet".[24] Monounsaturated fats are slightly unsaturated fats found in greatest amounts in foods from plants, including olive and canola oil. When substituted for saturated fat, monounsaturated fat helps to reduce LDL cholesterol and increase HDL cholesterol.[25] The American Heart Association recommends a monounsaturated fat intake in the range of 10% to 15% of calories, although others indicate that higher amounts may be beneficial.[20,24]

Another factor deserving attention is the use of *trans*-fatty acids.[20] *Trans*-fatty acids are produced when liquid vegetable oils are heated to form margarine and vegetable shortening. This technology was discovered around the turn of the century, and production increased until about the 1960s as vegetable fats replaced animal fat, first because of cost and then because of health issues.[20] Recent data have shown that *trans*-fatty acids may have an adverse effect on CHD risk, although not to the extent as saturated animal fat or highly saturated vegetable oils (such as palm and coconut). The American Heart Association recommends limiting use of *trans*-fatty acids, and encourages the food industry to develop more products with reduced *trans*-fatty acid content.[24]

Other Dietary Factors Related to Cardiovascular Disease

Fruits, Vegetables and Fiber

Studies have shown that eating more fruits and vegetables can reduce risk for heart attack and stroke.[9] The reasons are not entirely clear, although it may be the result of consuming a diet relatively low in animal fat, and high in soluble fiber. Currently, there is a national campaign to encourage the consumption of at least five servings of fruits and vegetables each day.

The recommended level of fiber consumption is 20-35 grams per day.[26] This level can be achieved through eating at least two to three servings of whole grains per day, five servings of fruits and vegetables per day, and legumes at least once or twice per week.[27]

Excess Caloric Intake

Obesity is related to an increased risk of heart disease in that it increases risk of diabetes and of high blood pressure. The current dietary recommendations encourage reaching and maintaining a desirable body weight by balancing caloric intake with physical activity.[19]

Marine Animals and Omega-3 Fatty Acids

Low rates of heart disease in Japan and Greenland have led to speculation that consumption of fish might be protective.[20] Fish and other marine life, such as seal and walrus are high in a special class of polyunsaturated fatty acids known as omega-3 fatty acids. Clinical studies have found that fish oils can decrease blood levels of cholesterol and triglycerides, as well as prolonging the blood clotting time.[28] Some large epidemiologic studies have found a protective effect of fish consumption; however, other studies found no effect.[20] Although the evidence is not clear at the present time, some, including the American Heart Association, recommend eating fish "both as an excellent source of omega-3 fatty acids and as a good protein source that is low in saturated fat."[28] Fish oil capsules are not recommended.

This issue is important among Alaska Natives, especially those with a subsistence lifestyle. Alaska Natives consume six times the amount of fish consumed by the general U.S. population.[10] Among at least one group of Alaska Natives, Siberian Yup'iks of Gambell, fat intake is high but it includes subsistence foods, such as marine mammals.[23] These foods are higher in omega-3-fatty acids and monounsaturated fatty acids. Individuals eating this diet have high levels of both LDL and HDL cholesterol but a favorable LDL to HDL ratio.[11] The more subsistence food consumed, the more desirable was the LDL to HDL ratio.

When giving advice to people living a subsistence lifestyle, it is important to emphasize decreasing saturated fats, as obtained in fatty meat and dairy foods from the store, rather than decreasing the total fat in the diet.[23] (See previous section on dietary guidelines.)

Alcohol

Alcohol has a number of adverse effects on the heart, including alcoholic cardiomyopathy, caused by a direct toxic effect of alcohol on the myocardium; dysrhythmias, including atrial fibrillation; high blood pressure, and elevated triglycerides.[19]

On the other hand, epidemiologic studies have found that moderate alcohol consumption of one to two drinks per day protects against coronary heart disease.[20]

Nonetheless, alcohol is a drug that produces addiction in susceptible individuals, birth defects in some children born to mothers who drink during pregnancy, numerous intentional and unintentional injuries, especially in Alaska, and many medical problems.[19] Although the consumption of alcohol at the level of one to two drinks per day has not been shown to be harmful and may be beneficial, an overall public health plan cannot recommend alcohol consumption as a broad, population-based approach.

Folic Acid, Homocysteine and Atherosclerosis

Homocysteine is an amino acid in the blood. Epidemiologic studies have found that people who have higher levels of homocysteine are at increased risk for heart attack and stroke. Folic acid and other B vitamins help to break down the homocysteine, and may be protective. Research is currently underway to further investigate the relationship between homocysteine and atherosclerosis.[20]

At the present time, the American Heart Association advises a healthy balanced diet and use of supplements only when diet is inadequate. The recommended intake of folic acid is 400 mg/day. Good sources are citrus fruits, tomatoes, vegetables, and grain products.[29]

Physical Inactivity

Health Benefits of Physical Activity

Regular physical activity decreases the risk of cardiovascular disease and of coronary heart disease. At the present time, it is not clear if physical activity prevents stroke. The level of decreased risk of coronary heart disease attributable to regular physical activity is similar to that of other lifestyle factors, such as keeping free from cigarette smoking. Regular physical activity has a beneficial effect on the cardiovascular system by preventing or delaying the development of high blood pressure, and reducing blood pressure in people who already have high blood pressure. In addition, regular physical activity lowers the risk of developing diabetes.[30]

Regular physical activity also improves health in the following ways:[30]

- Reduces risk of dying prematurely,
- Reduces risk of developing colon cancer.
- Maintains normal muscle strength, joint structure and joint function.
- Essential for normal skeletal development and attainment of optimal peak bone mass during childhood and adolescence.
- Relieves symptoms of depression and anxiety and may reduce risk of developing depression.
- Improves the health-related quality of life by enhancing psychological well-being and improving physical function among persons in poor health.

In July 1996, the U.S. Department of Health and Human Services released the first Surgeon General's report on physical activity and health.[30] The report provides a detailed review of the literature on physical activity and health, including: the historical background and evolution of recommendations; physiologic responses to long-term exercise; the effects of physical activity on health and disease; patterns and trends in physical activity; and understanding and promoting physical activity. Among the major findings:

- People who are usually inactive can improve their health and well-being by becoming even moderately active on a regular basis.
- Physical activity need not be strenuous to achieve health benefits.
- Greater health benefits can be achieved by increasing the amount (duration, frequency or intensity) of physical activity.

Working to improve the level of physical activity among Alaskans will improve the overall health of the population.

Physical Activity Guidelines

The Surgeon General recommends that all people (over 2 years of age) accumulate at least 30 minutes of endurance-type physical activity, of at least moderate intensity, on most— if not all—days of the week. A moderate amount of physical activity is defined as physical activity that is roughly equivalent to 150 calories of energy per day, or 1000 calories per week.

Examples of moderate activity include:

- **a.** walking 1¾ miles;
- **b.** running 1½ miles;
- **c.** playing basketball for 15-20 minutes;
- **d.** swimming laps for 20 minutes;
- **e.** raking leaves for 30 minutes, and
- **f.** shoveling snow for 15 minutes.

People should select activities that they enjoy and that fit into their daily lives. Because the amount of activity is a function of duration, intensity and frequency, the same amount of activity can be obtained in longer sessions of moderately intense activities (such as brisk walking) or in shorter sessions of more vigorous activity (such as running).

High Blood Pressure

Blood pressure refers to the force used to circulate blood through the body. When the blood pressure is high, the heart has to work harder. Systolic pressure is the force generated when the heart contracts, and diastolic pressure is the force when the heart is at rest. The increased pressure can damage vessels to vital organs, such as the heart, brain and kidneys. Hypertension is the single most important modifiable risk factor for stroke.

Blood Pressure Screening Guidelines

Blood pressure should be measured every two years for all adults if the latest diastolic and systolic blood pressure readings were below 85 and 140, respectively. If the latest diastolic blood pressure was 85-89, measurements should be yearly. Children and adolescents should also have blood pressure measured during routine office visits; age-sex-height specific nomograms have been published for use in determining abnormal levels.[31]

Diagnosis and Treatment

Criteria for hypertension among adults are an average diastolic pressure of 90 or more, or an average systolic pressure of 140 or more. Hypertension should not be diagnosed on the basis of a single measurement; elevated readings should be confirmed on more than one reading on each of three separate visits.

Once high blood pressure is diagnosed, health care providers should counsel patients about physical activity, weight reduction and dietary salt intake, and alcohol consumption. Health care providers should look for evidence for other cardiovascular risk factors, such as smoking and elevated cholesterol, and offer appropriate interventions. If needed, antihypertensive medications should be prescribed according to the most recent guidelines.

The efficacy of treatment in reducing stroke death and disability has been well established. Treatment has been found to be effective among whites and blacks, and among all age groups. Treatment has also been found to be effective among the elderly with isolated systolic hypertension.[31]

High Blood Pressure Awareness, Treatment and Control Rates

National data, shown in Table 3, find that among persons with hypertension, the percentage who are aware that they have hypertension has increased from 51% to 70%; the percent under treatment has increased from 31% to 55%, and the percent controlled has increased from 10% to 29%. Although the trend is going in the right direction, little gain was made between the 1988-91 and 1991-94 time periods. It is clear that we have a long way to go to get all people with hypertension under treatment and controlled.

The recent report "The Sixth Report of the Joint National Committee on the Prevention, Detection and Treatment of High Blood Pressure" lists a number of public health challenges related to hypertension:[32]

- prevent the risk of blood pressure with age;
- decrease the existing prevalence of hypertension;
- increase hypertension awareness and detection;
- improve control of hypertension;
- reduce cardiovascular risks;
- increase recognition of the importance of controlled isolated systolic hypertension;
- improve recognition of high-normal blood pressure;
- reduce ethnic, socioeconomic and regional variations in hypertension;
- improve opportunities for treatment; and
- enhance community programs.

Table 3

Trends in the Awareness, Treatment and Control of High Blood Pressure in the United States, 1976-94 [32]

People with hypertension◆ who are:	*NHANES II 1976-1980*	*NHANES III (Phase 1) 1988-91*	*NHANES III (Phase 2) 1991-94*
Aware of hypertension	51%	73%	68.4%
Under treatment for hypertension	31%	55%	53.6%
Hypertension is controlled◆◆	10%	29%	27.4%

◆ Data are for adults aged 18-74 years with SBP of 140 or higher or DBP of 90 or higher, or taking antihypertensive medication.

◆◆SBP below 140 and DBP below 90

Table from "The Sixth Report of the Joint National Committee on the Prevention, Detection and Treatment of High Blood Pressure", page 3.[32]

Cholesterol

Cholesterol is a soft, waxy substance found among the lipids (fats) in the bloodstream and in all the body's cells. It is an important part of a healthy body because it is used to form cell membranes, some hormones and other needed tissues. But a high level of cholesterol in the blood, hypercholesterolemia, is a major risk factor for heart attack (coronary heart disease). Cholesterol and other fats can't dissolve in the blood. They have to be transported to and from the cells by special carriers of lipids and proteins called lipoproteins. There are several kinds, but the most important are low density lipoprotein (LDL) and high density lipoprotein (HDL).

LDL is the major cholesterol carrier in the blood. When a person has too much LDL cholesterol circulating in the blood, it can slowly build up within the walls of the arteries feeding the heart and brain. That is why LDL cholesterol is often called "bad" cholesterol. HDL carries about one-third to one-fourth of blood cholesterol. Medical experts think HDL tends to carry cholesterol away from the arteries and back to the liver, where it is passed from the body. HDL is known as "good" cholesterol because a high level of HDL seems to protect against heart attack. The opposite is also true: a low HDL level indicates a greater risk.

Table 4

Initial Classification Based on Total and HDL Cholesterol [33]

Total Cholesterol	
<200 mg/dl	Desirable
200-239 mg/dl	Borderline
≥240 mg/dl	High
HDL Cholesterol	
< 35 mg/dl	Low

Cholesterol Screening Guidelines

The National Cholesterol Education Program recommends that all adults over age 20 be tested for serum total cholesterol every five years; HDL cholesterol should be measured at the same time if accurate results are available. Measurements may be made in the non-fasting state.[33] Initial classification is based on the total and HDL-cholesterol results (Table 4).

Further screening includes a fasting lipoprotein analysis on individuals who:

a. have an HDL less than 35 mg/dl;

b. have borderline cholesterol (200-239) and an HDL of < 35 mg/dl or 2 (or more) CHD risk factors; or

c. have a total cholesterol of 240 mg/dl or higher

Diagnosis and Treatment

Treatment consists of dietary therapy, physical activity and medication, if indicated. Treatment considerations are based on the age of the patient, the presence or absence of other coronary heart disease risk factors and the LDL cholesterol level (Tables 5 and 6). The LDL cholesterol level is calculated based on the lipoprotein analysis by the following formula:

LDL-cholesterol = total cholesterol — HDL-cholesterol — triglycerides/5

Table 5

Risk Status Based on Presence of Coronary Heart Disease Risk Factors Other Than LDL-Cholesterol [33]

Positive Risk Factors

Age
- Men: ≥ 45 years
- Women: ≥ 55 years of premature menopause without estrogen replacement

Family history of premature CHD (myocardial infarction or sudden death before age 55 in male first degree relative or before age 65 in female first degree relative; first degree relative = parent, sibling or child)

Current cigarette smoking

Hypertension

Low HDL cholesterol

Diabetes

Negative Risk Factor

High HDL cholesterol (≥ 60mg/dl) if HDL ≥ 60 subtract one risk factor

Table 6

Treatment Decisions Based on LDL-Cholesterol [33]

Dietary Therapy	Initiation Level	LDL Goal
Without CHD and fewer than 2 risk factors	≥ 160 mg/dl	< 160 mg/dl
Without CHD and with 2 or more risk factors	≥ 130 mg/dl	< 130 mg/dl
With CHD	> 100 mg/dl	≤ 100 mg/dl

Drug Treatment	Consideration Level	LDL Goal
Without CHD and fewer than 2 risk factors	≥ 190mg/dl	< 160 mg/dl
Without CHD and with 2 or more risk factors>	= 160 mg/dl	< 130 mg/dl
With CHD	> 130 mg/dl	≤ 100 mg/dl

Overweight and Obesity

Overweight is classified as a body mass index (BMI) of 25 to 29.9, and obesity as a BMI of 30 or higher, according to the first United States report dealing with the identification, evaluation and treatment of obesity.[34] The BMI, which describes relative weight for height, is significantly correlated with the amount of total body fat. BMI is calculated as weight (kg)/height squared (m2). To calculate BMI using pounds and inches use: [weight (pounds)/height (inches)^2 x 704.5].

The report recommends that overweight not be treated unless the patient has two or more risk factors for heart disease, or a high waist circumference (>102 cm for men and >88 cm for women). Treatment of overweight should emphasize altering diet and physical activity patterns to prevent development of obesity and to promote moderate weight loss. Treatment of obesity should focus on producing a substantial weight loss over a prolonged period of time.

Treatments discussed in the report include low calorie diets, low fat diets, altering physical activity patterns, behavior therapy, pharmacotherapy, surgery, and combinations of these therapies.

In response to the growing body of scientific evidence linking obesity to heart disease and the fact that the prevalence of obesity is increasing in the United States, the American Heart Association recently reclassified obesity as a major, modifiable risk factor for coronary heart disease.[35]

Benefits of Weight Loss in Overweight and Obese People[34]

a. Blood pressure reduction among hypertensive and non-hypertensive individuals;

b. Reduction in serum triglycerides;

c. Increase in serum HDL;

d. Reduction in total cholesterol and LDL cholesterol;

e. Reduction in blood sugar levels among people with and without diabetes;

f. Improved HgA1c levels among people with Type 2 diabetes.

Diabetes

Diabetes mellitus is a heterogeneous group of disorders characterized by high blood glucose levels. The high glucose levels in the blood are due either to insulin deficiency (Type I diabetes) or to resistance of the body's cells to the action of insulin (Type II diabetes).[36]

The most common cause of death among adults with both types of diabetes is coronary heart disease. In contrast to people without diabetes, heart disease in people with diabetes appears earlier in life, affects women almost as often as men, and is more often fatal. Adults with diabetes are more likely to have hypertension and lipid abnormalities (low levels of HDL cholesterol and high levels of LDL cholesterol).[36]

The Alaska Cardiovascular Disease Prevention Plan does not specifically make recommendations for people with diabetes; however, given the increased risk of heart disease among people with diabetes, it is especially important that people with diabetes control other risk factors.

In addition, evidence is accumulating that Type II diabetes may be delayed or prevented with the same healthy lifestyles that prevent atherosclerosis, namely a healthy diet and physical activity.[36]

Diabetes Guidelines[37]

The American Diabetes Association recommends the following to people with diabetes in regard to preventing heart disease:

a. Keep blood glucose levels as near to normal as possible.

b. Quit smoking

c. Keep blood pressure under control.

d. Keep cholesterol and triglyceride levels in the good range. If diet alone is not effective, medications may be needed.

e. Seek regular medical care. Health care providers should monitor blood pressure, cholesterol levels, and overall blood glucose control, including glycated hemoglobin.

f. Eat a heart-healthy diet.

g. Get regular exercise after discussing with a health care provider.

Stress, Anger and Other Psychosocial Factors

A relationship between heart and mind has long been suspected. In the past 35 years a large body of literature has evolved looking at "cardiac psychology." Researchers have examined psychological stress, Type A behavior, anger, lack of social support, job strain, and depression in relation to heart disease. However, little is known of any specific mechanism by which stress contributes to heart disease risk.[38]

"Stress" is a term used to describe the condition that results from a person's response to physical, chemical, emotional or environmental factors. Stress can refer to physical effort as well as mental tension. Physical stress is relatively easy to measure; on the other hand it has been exceedingly difficult to measure, and therefore study, mental or emotional stress. All people feel stress, but they feel it in different amounts and react to it in different ways. Research on the effects of stress is difficult because stress is so hard to define and because people experience it differently.[38]

Stress may affect other coronary risk factors and behaviors. Many of the traditional risk factors for heart disease, such as cigarette smoking, hyperlipidemia, hypertension and lack of exercise, have a significant behavioral component.

What is evident from recent research is that heart disease risk reduction programs that include a psychological component appear to be helpful.[38] Furthermore, efforts to improve heart health may improve mental health. For example, physical activity has been shown to be beneficial in treatment and prevention of depression.[39]

References

1. Alaska Bureau of Vital Statistics. 1996 Annual Report: Alaska Division of Public Health; 1998.

2. Alaska Division of Public Health. 1996 Behavioral Risk Factor Surveillance System, unpublished data.

3. Smith C, Pratt M. Cardiovascular Disease. In: Brownson RC, Remington PL, Davis JR, ed. *Chronic Disease Epidemiology and Control*. Washington, DC: American Public Health Association; 1993.

4. American Heart Association. Heart and Stroke Facts: 1997 Statistical Supplement. Dallas: American Heart Association; 1998.

5. Williams JG. Alaska Population Overview: 1996 Estimates: Alaska Department of Labor; 1997.

6. Middaugh J, Miller J, Dunaway C, et al. Causes of Death in Alaska: 1950, 1980-89: Section of Epidemiology, Alaska Division of Public Health, Department of Health and Social Services, State of Alaska; 1991.

7. Alaska Division of Public Health. Alaska Behavioral Risk Factor Survey: 1995 Annual Report: Section of Community Health and Emergency Medical Services, Alaska Division of Public Health, Department of Health and Social Services, State of Alaska; 1997.

8. Alaska Division of Public Health and Alaska Department of Education. 1995 Alaska Youth Risk Behavior Survey; 1996.

9. Alaska Department of Health and Social Services. Eat Smart Alaska! Nutrition-Related Chronic Disease in Alaska 1997 Needs Assessment. Anchorage, Alaska: Department of Health and Social Services, Alaska Division of Public Health, Section of Maternal and Child Health; 1997.

10. Nobmann E, Byers T, Lanier A, et al. The diet of Alaska Natives 1987-1988. Am J Clin Nutr. 1992; 55:1024-1032.

11. Nobmann E. Diet among Siberian Yupiks of Alaska and the implications for cardiovascular disease. Fairbanks: University of Alaska; 1996.

12. Alaska Division of Public Health. Diabetes in Alaska. State of Alaska Epidemiology Bulletin. 1997.

13. Schraer C, Adler A, Mayer A, et al. Diabetes complications and mortality among Alaska Natives: 8 Years of Observation. Diabetes Care. 1997; 20:314-321.

14. Fawcett S, Sterling T, Paine-Andrews A, et al. Evaluating community efforts to prevent cardiovascular disease. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Control; 1995.

15. U.S. Department of Health and Human Services. The Health Consequences of Smoking: Cardiovascular Disease: A report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office on Smoking and Health; 1983.

16. Environmental Protection Agency. Respiratory Health Effects of Passive Smoking: Lung cancer and other disorders: Environmental Protection Agency; 1992.

17. Steenland K. Passive smoking and the risk of heart disease. J Am Med Assoc. 1992;267:94-99.

18. U.S. Department of Health and Human Services. The Health Benefits of Smoking Cessation: A report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, Office on Smoking and Health; 1990.

19. U.S. Department of Health and Human Services. The Surgeon General's Report on Nutrition and Health. Washington, D.C.: U.S. Department of Health and Human Services, Public Health Service; 1988.

20. Willet W, Lenart E. Dietary Factors. In: JE Manson PM Ridker, JM Gaziano, CH Hennekens, ed. *Prevention of Mycardial Infarction*. New York: Oxford University Press; 1996:351-386.

21. Alaska Department of Health and Social Services. Healthy Alaskans 2000: Department of Health and Social Services, Division of Administrative Services, Planning Section; 1994.

22. U.S. Department of Agriculture. Dietary Guidelines for Americans: U.S. Department of Agriculture and U.S. Department of Health and Human Services; 1995.

23. Nobmann E, Ebbesson S, White R, et al. Dietary intakes among Siberian Yupiks of Alaska and implications for cardiovascular disease. International J Circumpolar Health. 1998; in press.

24. Krauss R, Deckelbaum R, Ernst N, et al. Dietary Guidelines for Healthy American Adults: A statement for health professionals from the Nutrition Committee, American Heart Association. Circulation. 1996;94:1795-1800.

25. McManus K, Roberts C, Manson J. Appendix A: Nutrition guidelines for reducing coronary risk. In: JE Manson PM Ridker, JM Gaziano, CH Hennekens, ed. Prevention of Myocardial Infarction. New York: Oxford University Press; 1996.

26. Van-Horn L. Fiber, lipids and coronary heart disease. Circulation. 1997;95:2701-2704.

27. Marlett JA, Slavin JL. Position of The American Dietetic Association: Health implications of dietary fiber. ADA Web page. 1997.

28. Stone NJ. Fish consumption, fish oils and coronary heart disease. Circulation. 1996; 94:2337-2340.

29. American Heart Association Science Advisory. New evidence for role of homocysteine in cardiovascular disease. AHA Web page http:// www.amhrt.org; 1997.

30. U.S. Department of Health and Human Services. Physical activity and health: A report of the Surgeon General: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, The President's Council on Physical Fitness and Sports; 1996.

31. U.S. Preventive Services Task Force. Guide to Clinical Preventive Services. Second ed. Baltimore: Williams and Wilkins; 1996.

32. National High Blood Pressure Education Program. The Sixth Report of the Joint National Committee on Prevention, Detection and Treatment of High Blood Pressure: National Institutes of Health, National Heart, Lung and Blood Institute; 1997.

33. National Cholesterol Education Program. Second Report on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults: National Institutes of Health, NHLBI; 1993.

34. National Institutes of Health, National Heart, Lung and Blood Institute, Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, The Evidence Report, Executive Summary, June 1998.

35. Eckel RH, Krauss RM: American Heart Association's Call to Action: Obesity as a major risk factor for coronary heart disease. Circulation 1998; 97: 2099-2100.

36. National Diabetes Data Group. Diabetes in America, 2nd Edition: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 1995.

37. American Diabetes Association. Cardiovascular Health: Is Your Heart in It? American Diabetes Web Page http://www.diabetes.org.

38. Allan R, Scheidt S. Stress, anger and psychosocial factors for coronary heart disease. In: JE Manson, PM Ridker, JM Gaziano, CH Hennekens, ed. Preventing Myocardial Infarction. New York: Oxford University Press; 1996.

39. U.S. Department of Health and Human Services. Healthy People 2000, National Health Promotion and Disease Prevention Objectives. Washington, D.C. Public Health Service, DHHS Publication No. (PHS) 91-50212; 1990.

Selected Healthy People 2000 Objectives for Prevention and Control of Cardiovascular Diseases

Reduce coronary heart disease deaths to no more than 100 per 100,000. Objective 15.1

Reduce stroke deaths to no more than 20 per 100,000 people. Objective 15.2

Increase to at least 50 percent the proportion of people with high blood pressure whose blood pressure is under control. Objective 15.4

Increase to at least 90 percent the proportion of people with high blood pressure who are taking action to help control their blood pressure. Objective 15.5

Increase to at least 30 percent the proportion of people aged six and older who engage regularly, preferably daily in light to moderate physical activity for at least 30 minutes per day. Objective 1.3

Increase to at least 20 percent the proportion of people aged 18 and older and to at least 75 percent the proportion of children and adolescents aged 6-17, who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness three or more days per week for 20 or more minutes per occasion. Objective 1.4

Reduce to no more than 15 percent the proportion of people aged six and older who engage in no leisure time physical activity. Objective 1.5

Reduce dietary fat intake to an average of 30 percent of calories or less and average saturated fat intake to less than 10 percent of calories among people aged two and older. Objective 2.5

Reduce overweight to a prevalence of no more than 20 percent among people aged 20 and older and no more than 15 percent among adolescents aged 12-19. Objective 2.3

Increase complex carbohydrates and fiber containing foods in the diets of adults to five or more daily servings for vegetables (including legumes) and fruits and to six or more daily servings for grain products. Objective 2.6

Reduce cigarette smoking to a prevalence of no more than 15 percent among people aged 20 and older. Objective 3.4

Reduce the initiation of cigarette smoking by children and youth so that no more than 15 percent have become regular cigarette smokers by age 20. Objective 3.5

Increase to at least 75 percent the proportion of the Nations elementary and secondary schools that provide planned and sequential kindergarten – 12th grade quality school health education. Objective 8.4

Increase to at least 85 percent the proportion of workplaces with 50 or more employees that offer health promotion activities for their employees, preferably as part of a comprehensive employee health promotion program. Objective 8.6

Reduce the mean serum cholesterol level among adults to no more than 200 mg/dl. Objective 15.6

Reduce the prevalence of blood cholesterol levels of 240 mg/dl or greater to no more than 20% among adults. Objective 15.7

Increase to at least 60% the proportion of adults with high blood cholesterol who are aware of their condition and are taking action to reduce their blood cholesterol to recommended levels. Objective 15.8

Increase to at least 75% the proportion of adults who have had their blood cholesterol checked within the preceding five years. Objective 15.14

Increase to at least 90 percent the proportion of clinical laboratories that meet the recommended accuracy standard for cholesterol measurement. Objective 15.17

Increase to at least 75 percent the proportion of people aged 10 and older who have discussed issues related to nutrition physical activity, sexual behavior, tobacco, alcohol, other drugs, or safety with family members on at least one occasion during the preceding month. Objective 8.9

Establish community health promotion programs that separately or together address at least three of the Healthy People 2000 priorities and reach 40% of each state's population. Objective 8.10

Increase to at least 50% the proportion of counties that have established culturally and linguistically appropriate community health promotion programs for racial and ethnic minority populations. Objective 8.11

Increase to at least 90 percent the proportion of hospitals, health maintenance organizations and large group practices that provide patient education programs and to at least 90 percent the proportion of community hospitals that offer community health promotion programs addressing priority health needs of their communities. Objective 8.12

Increase to a least 50 percent the proportion of worksites with 50 or more employees that offer high blood pressure and/or cholesterol education and control activities to their employees. Objective 15.16

Increase to at least 75 percent the proportion of the Nation's schools that provide nutrition education from preschool to 12th grade, preferably as part of quality school health education. Objective 2.19

Establish tobacco free environments and include tobacco use prevention in the curricula of all elementary, middle and secondary schools, preferably as part of quality school health education. Objective 3.10

Increase to at least 75 percent the proportion of primary care providers who initiate diet and if necessary, drug therapy at levels of blood cholesterol consistent with current management guidelines for patients with high blood cholesterol. Objective 15.15

Resources

Diabetes

Alaska Division of Public Health
Diabetes Control Program
Section of Epidemiology
P.O. Box 240249
Anchorage, Alaska 99524-0249
907-269-8000, fax 907-562-7802

Alaska Native Medical Center
Diabetes Program
4315 Diplomacy Drive
Anchorage, Alaska 99508
907-729-1125, fax 907-729-1129

American Diabetes Association
1660 Duke St.
Alexandria, Virginia 22314
703-549-1500
Web site: http://www.diabetes.org/

American Diabetes Association, Alaska Affiliate, Inc.
801 West Fireweed Lane, Suite 103
Anchorage, Alaska 99503
800-DIABETES or 907-272-1424, fax 907-272-1428

Diet

Alaska Dietetic Association
P.O. Box 242731
Anchorage, Alaska 99524-2731
907-261-3089

Alaska Division of Public Health
Chronic Disease Nutrition
Section of Maternal, Child and Family Health
1231 Gambell Street
Anchorage, Alaska 99501
907-269-3457, fax 907-269-3465

Eat Smart Alaska!
1231 Gambell Street
Anchorage, Alaska 99501
907-269-3457, fax 907-269-3465

National Obesity Education Initiative
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
3011-251-1222, fax 301-251-1223
Web site: http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm

Weight-control Information Network
1 WIN Way
Bethesda, Maryland 20892-3665
800-WIN-8098 or 301-984-7378, fax 301-984-7196
Web Site: http://www.niddk.nih.gov/health/nutrit/win.htm

Heart Disease and Stroke

Alaska Division of Public Health
Chronic Disease Epidemiology
Section of Epidemiology
P.O. Box 240249
Anchorage, Alaska 99524-0249
907-269-8000, fax 907-561-1896

Alaska Division of Public Health
Health Promotion Program
Section of Community Health and Emergency Medical Services
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-3140, fax 907-465-2770

Alaska Health Fair, Inc.
P.O. Box 202587
Anchorage, Alaska 99520-2587
907-278-0234, fax 907-258-1848

American Heart Association
7320 Greenville Avenue
Dallas, Texas 75231
800-640-4640, fax 800-242-8721
Web site: http://www.amhrt.org/

American Heart Association, Alaska Region
1057 W. Fireweed Lane, Suite 206
Anchorage, Alaska 99503
907-263-2044, fax 907-263-2045

National Cholesterol Education Program
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
301-251-1222, fax 301-251-1223
Web site: http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm

National Heart Lung and Blood Institute
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
301-251-1222, fax 301-251-1223
Web site: http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm

National High Blood Pressure Education Program
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
301-251-1222, fax 301-251-1223
Web site: http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm

Providence Alaska Medical Center
Critical Care, Respiratory Therapy and the Heart Center
3200 Providence Drive
Anchorage, Alaska 99519-6604
907-261-4852, fax 907-261-3683

Physical Activity

Alaska Association for Physical Education, Recreation and Dance
c/o American Heart Association
1057 West Fireweed Lane, Suite 206
Anchorage, Alaska 99505

Alaska Association of Recreation and Parks
P.O. Box 102664
Anchorage, Alaska 99510-2664

Alaska Division of Public Health
Health Promotion Program
Section of Community Health and Emergency Medical Services
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-3140, fax 907-465-2770

American Alliance for Health, Physical Education, Recreation and Dance
1900 Association Drive
Reston, Virginia 20191-1599
800-213-7193 or 703-476-3410, fax 703-476-8316
Web site: http://www.aahperd.org/

Division of Nutrition and Physical Activity
National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention
4770 Buford Highway
Atlanta, Georgia 30341
1-800-CDC-4NRG
Web site: http://www.cdc.gov/

National Association for Sport and Physical Education
1900 Association Drive
Reston, Virginia 20191-1599
800-213-7193 or 703-476-3410, fax 703-476-8316

National Association of Recreation and Parks
P.O. Box 6287
Arlington, Virginia 22206
800-626-6772

National Coalition for Promoting Physical Activity (NCPPA)
1900 Association Drive
Reston, Virginia 20191-1599
Web site: http://www.ncppa.org/ncppa/

Smoking

Alaska Division of Public Health
Tobacco Prevention and Control Program
Section of Community Health and Emergency Medical Services
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-8641, fax 907-465-6861

Alaska Native Health Board
Trampling Tobacco Project
1402 Tudor Centre Drive, Suite 105
Anchorage, Alaska 99508
907-562-6006, fax 907-563-2001
Web site: http://www.anhb.org/

Alaska Tobacco Control Alliance
Alaska Division of Public Health
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-8641, fax 907-465-6861

American Cancer Society
1057 W. Fireweed Lane, Suite 204
Anchorage, Alaska 99503
800-478-9355 or 907-277-8696,
fax 907-263-2803

American Cancer Society Inc.
1599 Clifton Road, N.E.
Atlanta, Georgia 30329-4251
800-ACS-2345 or 404-320-3333
Web site: http://www.cancer.org/main.html

American Lung Association
1740 Broadway
New York, New York 10019
212-315-8700
Web site: http://www.lungusa.org/

American Lung Association of Alaska
1057 W. Fireweed Lane, Suite 201
Anchorage, Alaska 99503-1736
907-276-5864, fax 263-2090

Office on Smoking and Health
Centers for Disease Control and Prevention
2945 Flowers Road South, Mailstop K 67
Atlanta, GA 30341
770-488-1265, fax 770-488-1157
Web site: http://www.cdc.gov/tobacco

Other

Association of Worksite Health Promotion
60 Revere Drive, Suite 500
Northbrook, Illinois 60062-1577
708-480-9574

National Wellness Institute Inc.
1300 College Court
P.O. Box 827
Stevens Point, Wisconsin 54481-0827
Web site: http://www.wellnessnwi.org/

Wellness Councils of America
7101 Newport Avenue, Suite 311
Omaha, Nebraska 68152
402-572-3590